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ABSTRACT

The 1978 report of the Working Group of Postgraduate Training in Clinical Oncology, convened by the World Health Organization (WHO) Regional Office for Europe in collaboration with the government of The Netherlands, is presented. The groups analyzed models of postgraduate training in clinical oncology and evaluated their suitability in relation to different types of cancer control services in various countries. In view of differences in service delivery, distinctions were made between three types of institutions: the highly specialized cancer center serving a large population; the second-level cancer service, based in a hospital with a reasonably developed radiotherapy department; and a general hospital that treats cancer patients. Desirable patterns of postgraduate training in oncology were considered for three categories of physicians: the general physician (general practitioner), the non-oncological specialist, and the full-time clinical oncologist. Although the focus was primarily the physician's initial or immediate postgraduate training, some consideration was given to the desirability and pattern of continuing education. Three main disciplines also were addressed: radiotherapy, medical oncology, and surgical oncology. International sources of information about particular fields and 18 recommendations of the working groups are presented. Information about further training in oncology and programs for general physicians for 11 countries are appended, along with an article on cancer education in Europe (S. Eckhardt). (SW)

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ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО

POSTGRADUATE TRAINING IN CLINICAL ONCOLOGY

Report on a WHO Working Group

The Hague
6-8 December 1978

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1. Introduction

The Working Group on Postgraduate Training in Clinical Oncology, convened by the WHO Regional Office for Europe in collaboration with the Government of the Netherlands, met in The Hague from 6-8 December 1978. Its members were clinicians working in oncology with postgraduate training responsibilities, scientists active in basic sciences related to oncology and public health administrators responsible for cancer control (Annex IV). Its terms of reference were to analyse models of postgraduate training in clinical oncology and to evaluate their suitability in relation to different types of cancer control services in various countries.

The Group elected Professor F.J. Cleton Chairman, Dr S. Harvei Vice-Chairman and Mr J. Hogarth Rapporteur.

The Secretary-General of the Netherlands Ministry of Public Health and Environmental Protection, Dr P. Siderius, welcomed the members of the Group. He referred to the concern felt in the Netherlands, as in other European countries, about the rising mortality figures for cancer and to the progress made in recent years in cancer treatment. The rapidity of this progress made it difficult for general physicians and specialists alike to keep pace with advances in therapy, and the involvement of many different specialties made a multidisciplinary approach essential. His Government was considering a recommendation for the setting up of a system of cancer centres based on integrated and multidisciplinary university centres, which would provide treatment, research and training at all levels, and it had recently received advice from the Netherlands Health Council emphasizing the importance of training in oncology in the medical curriculum and the need to provide more facilities for postgraduate education. He concluded by expressing the hope that the exchange of information and views in the Group would help those responsible in the Netherlands, as in other countries, to decide how the training of physicians could be improved for the benefit of patients.

Dr I.J. Møller welcomed the members of the Group on behalf of Dr Leo A. Kaprio, WHO Regional Director for Europe, and expressed WHO's gratitude to the Government of the Netherlands for providing the funds and the physical facilities which had made the meeting possible.

Dr Møller invited the Group to consider the scope and purpose of the deliberations, as set out in its terms of reference, agreed upon by WHO and the Netherlands Ministry of Public Health and Environmental Protection, and suggested that they should direct their recommendations primarily towards models of postgraduate training in clinical oncology and towards the suitability of these models for different types of cancer control services in various countries.

Dr Møller explained that the terms of reference should be considered in the light of the longer-term WHO programme. In July 1977, a conference on comprehensive cancer control had been convened in Copenhagen by the Regional Office. The Regional Committee, at its session in London in September 1978, had reviewed proposals for a cancer programme that had been worked out by a consultative group for the current period (i.e. the five years ending with 1983).

The present meeting was the first of a series of activities on education and training in cancer and would be followed by a study on undergraduate training in 1979 and a conference on education and training in 1980. He expressed the hope that any recommendations put forward by the Group would be as specific as possible; he recognized that not all its recommendations might be immediately applicable or acceptable to particular countries, but they would nevertheless form useful guidelines for further development.

2. Present situation of postgraduate training in oncology

2.1 Background

The problem and challenges facing cancer control services in the European Region are well set out in the report (1) of an earlier conference on comprehensive cancer control, which recommended among other things that increased attention should be focused on the training of those concerned with cancer control; the Group used this report as background to its own discussions. On the general structure of postgraduate medical education, it had before it a report on graduate medical education in the European Region (2) and a first supplementary report on the same subject (3). It also had available a paper on cancer education in Europe, providing statistical data on training arrangements in the European Region (Annex I).

The Group heard reports from members on the present arrangements for further training in oncology in their respective countries; these are summarized in Annex II.

2.2 Shortcomings of postgraduate training in oncology

The members of the Group were very conscious, both from their own knowledge and from the information presented to them, of the shortcomings in the present arrangements for postgraduate training in clinical oncology. They noted the critical remarks made by the Board of Scientific Counselors (USA) after visiting almost all the main cancer centres of western Europe in July-September 1977,[a] and they also had before them a paper prepared by Professor W.K. Jasinski, summarizing the replies so far received to a questionnaire circulated to medical schools in the European Region under a WHO project for the preparation of a directory of cancer centres and schools teaching oncology, with the object of promoting international cooperation in that field. The response to the questionnaire was disappointing, providing information from less than 14% of the 355 medical schools approached and covering less than half of the 31 countries concerned. The replies so far received revealed an unsatisfactory situation, and it seemed likely that these interim results understated the extent of the deficiencies over the Region as a whole, since it might be supposed that the schools that did not reply were less active in postgraduate training in oncology than those that did.

Professor Jasinski's enquiry sought information about undergraduate as well as postgraduate training in oncology, since a sound experience in organizing undergraduate training was considered a necessary basis for sound training of specialists and for effective continuing education. The replies to the questionnaire showed, however, that in 60% of the medical schools concerned, the oncology training provided in the various specialties was quite uncoordinated and that only 30% of the schools had coordination committees responsible for designing and conducting a comprehensive cancer education programme.

A medical school's potential for training in oncology, at both undergraduate and postgraduate levels, depends essentially on its practical experience in cancer prevention, screening, diagnosis and treatment. Here again the replies to the questionnaire revealed deficiencies. Many of the schools engaged in undergraduate oncology training had no provision for practical experience in epidemiology (60%), in screening (50%) or in pathology (20%); 25% had no outpatient department, and the same proportion had no hospital beds for cancer patients; 50% had no cancer registry, either hospital- or population-based; and 35% did not follow up cases after treatment. In the schools engaged in postgraduate training, the position was more satisfactory in these respects.

As regards postgraduate training, the replies to the questionnaire showed that 60% of the schools were engaged in continuing education and about 40% provided fellowships for this purpose, while 30% had experience in educating the public on cancer - an important feature of postgraduate and continuing education for physicians. In only 15% of schools were there all three of these features. These figures can be compared with the information provided by the International Union against Cancer (UICC) in the International directory of specialized cancer research and treatment establishments (4), which shows that of 307 cancer establishments listed, many of which are part of medical schools, 174 provide postgraduate training in cancer treatment or research.

The Group noted that definition of the aims and objectives of the education given, the establishment of criteria for judging how far they were achieved and an evaluation of the results of the educational process are essential conditions for postgraduate training, but that neither the WHO project nor the UICC directory provided any information on these matters.

The Group agreed that the situation revealed in Professor Jasinski's report gave cause for concern and regretted that the response to his questionnaire had been so unsatisfactory. They were strongly of the opinion that every effort should be made to secure a fuller and more representative response to the WHO questionnaire, so that the projected directory might provide a more adequate basis for assessing the pattern of postgraduate training in oncology in the Region.

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[a] "The training of specialists in oncology, except for radiotherapists, is lagging behind that of training programs in the United States. Too little and too inadequate a job is devoted to the training of paediatricians-internists, who then branch into the field of oncology. In most countries, I have the impression that following the one year of requisite internship, individuals opted to enter oncology and then did most of their training with established oncologists, whose ability to be general internists was quite variable and whose ability to be modern oncologists was also unpredictable. The lack of recognized specialty boards in radiotherapy, medical oncology, paediatric oncology and surgical oncology is to be regretted and certainly contributes towards the unstructured programs in most countries" (National Cancer Institute, unpublished).

3. General considerations

3.1 Definition of the problem

The Group's terms of reference invited it to consider desirable patterns of postgraduate training in oncology and their suitability for the various systems of cancer control in different countries. Although the Group began by dividing the subject into these two aspects, it soon emerged that it was difficult to discuss one aspect without the other. The structure of this report, therefore, is principally based on the Group's consideration of training patterns for the different types of physician engaged in cancer control services, leaving the question of the suitability of particular patterns to particular types of service to emerge in the course of the discussion.

Recognizing that the pattern of oncology service would differ according to the type of institution which provides it, the Group agreed that it would be useful to distinguish between three types of institution:

(a) the highly specialized cancer centre, serving a population of perhaps 1-3 million;

(b) the second-level cancer service, based in a hospital with a reasonably developed radiotherapy department; and

(c) a general hospital which treats cancer patients.

Smaller countries might regard type (b) as more appropriate to their circumstances than type (a), and even in larger countries, it was felt, there might be a danger of isolating specialist cancer services by housing them in large and relatively remote new centres. In any event, it is usually unjustifiable on economic grounds to replace existing hospital-based services by large and expensive new cancer centres.

The Group agreed to approach its task by considering desirable patterns of postgraduate training in oncology for three different categories of physician:

(a) the general physician (general practitioner);

(b) the non-oncological specialist; and

(c) the full-time clinical oncologist.

Throughout the greater part of its discussions the Group was primarily concerned with a physician's initial or immediate postgraduate training, but it also gave some consideration to the desirability and pattern of continuing education.

The Group was very conscious of the difficulties of terminology in the field with which it was concerned. The term "clinical oncology" itself - often imprecisely used - could be taken as meaning the combined medical effort (i.e. by the medical, nursing and other associated professions) in research, diagnosis, treatment and care directed towards patients suffering from cancer, and the constitution and terms of reference of the Group did not allow it to cover the whole of this field. Its members were well aware of the important part played by nurses and other professions associated with medicine in the care of cancer patients, and they were in no doubt of the need to ensure that members of these professions are properly trained to play that part, but this is a matter which they felt bound to leave for consideration by others better qualified to deal with it.

Similarly, the Group could not do justice to the special circumstances of the various medical specialties concerned with particular aspects of oncology - paediatrics, gynaecology, urology, etc. As regards paediatric oncology, for example, it is clear that training should be included to an appropriate extent in the postgraduate education of all physicians - general physicians and paediatricians, paediatric specialists in all subspecialties, radiotherapists, surgeons and paediatric surgeons - who come in contact with children with cancer; that this training should be provided by specialists in paediatric oncology; and that appropriate continuing education in oncology should be provided for all physicians concerned at various levels with the health care of children. Corresponding considerations should apply to other specialist fields such as gynaecology and urology.

The Group was very conscious also of the part that might be played by pathologists and radiodiagnosticians in the detection and diagnosis of cancer, and although it did not consider the circumstances of these specialties at any length, much of what is said later in this report about the need to keep all physicians concerned in the care of cancer patients informed about the full range of available methods applies equally to them.

3.2 Need for a multidisciplinary approach

This preliminary discussion brought out an important general point which is worth emphasizing at the outset: the multidisciplinary aspect of cancer control and the consequent need to ensure that all those concerned with the care of cancer patients are accustomed to working together as a team. Responsibility for the initial examination of a patient suspected to be suffering from cancer does not lie with any single specialist: it may have to be performed by any one of a number of specialists - a surgeon, an internist, a gynaecologist, an ophthalmologist, a neurologist, a paediatrician, a pathologist, a radiotherapist, etc. Any specialist who receives a patient with symptoms which suggest cancer must have a thorough knowledge of how cancer diseases manifest themselves, which examinations yield the most precise information and how they are performed, and how far he can manage treatment himself or must refer for assistance to other specialists. The provision of specialized treatment is thus a matter for a team of specialists, working in continuous consultation with one another and each playing a leading or secondary part as appropriate to the particular stage of diagnosis or treatment. At certain stages in the process - particularly at the stages of prevention and early diagnosis and again at the later stages of follow-up and rehabilitation - the general physician has an important part to play in the team. At all stages, of course, nurses and other associated professionals are also members of the team but, as already noted, these professions lie outside the Group's terms of reference. This multidisciplinary structure of diagnosis and treatment must be taken into account in the arrangements for postgraduate and continuing training for those concerned.

Finally, it may be observed that there are inevitable limitations on training facilities, related among other things to the number of patients under treatment. This means that the numbers of oncological specialists who can be trained at any given time may have to be limited so as to make the best use of available resources.

4. General physicians, non-oncological specialists and full clinical oncologists

The following sections of the report deal successively with postgraduate training of the general physician, the non-oncological specialist and the full clinical oncologist (oncological specialist).

4.1 The general physician

The Group agreed that the aspects of cancer control that particularly concern general physicians, and to which, therefore, particular attention should be paid in their training, are primary prevention and health education of the public, early diagnosis (secondary prevention), follow-up and documentation and rehabilitation. It was observed that the success of training in this field - as, indeed, in the other fields with which the Group was concerned - will be judged by the contribution it makes to the survival of patients and the quality of life it enables them to enjoy.

Even though the general physician may see only a relatively few patients with cancer in a year, his position is of particular importance to programmes aimed at early diagnosis, since the physician of first contact has the opportunity to be the first to identify a case of suspected cancer. He must therefore keep abreast of modern diagnostic methods and be aware of the availability of treatment resources and methods, so that he may know where to refer cancer patients who come his way. His role in treatment itself is secondary, but since, particularly in the larger countries, there is a trend towards larger cancer centres which are more remote from patients, and since an increasing amount of cancer treatment is now on an outpatient basis, there is increasing scope for the general physician to play a part in the treatment (e.g. by carrying out blood counts or giving chemotherapy in conjunction with the oncologist).

The Group agreed, therefore, that further training in oncology for the general physician, whether immediate postgraduate education or continuing education, should cover primary prevention, education of the public, early diagnosis, modern treatment methods, use of existing facilities and methods of follow-up and rehabilitation. It is desirable that this further training should take place at an early stage, but pressure on training posts may make this difficult to arrange. It is all the more important, therefore, that training in oncology should be included in the physician's continuing education.

The Group noted that general physicians, depending on the organizational structure of practice in the particular country, might be encouraged to undergo further training by certain financial inducements: for example, under a "credit" system which might (as in Belgium) count towards an additional qualification and permit the charging of higher fees or might (as in the United Kingdom) be directly reflected in increased remuneration.

The Group reviewed the arrangements for further training in oncology for general physicians in the various countries represented. The different patterns are summarized in Annex III. In general, it appears that the arrangements are decentralized, with no rigid training programmes. Exceptions to this generalization appear to be Belgium, where the arrangements are centralized though still without any binding programme; Poland, where the arrangements are centralized though now moving towards decentralization; and the USSR, where the arrangements are decentralized (in the sense of falling within the responsibility of the individual republics) although the training programme is carefully structured.

Given the wide variations in structure between the different countries and the differing roles of the general physician, the Group did not consider it possible to lay down any precise specifications as to the detailed content of the postgraduate training programme for general physicians or the length of time that should be devoted to it.

4.2 The non-oncological specialist

In approaching this part of its subject, the Group was well aware of the difficulties of definition and the wide range of variation in the countries of the European Region (3). They realized also that the importance of proper training in oncology for the non-oncological specialist is likely to increase in future, since the field of cancer treatment is becoming steadily wider and can be expected to involve non-oncological specialists - and perhaps also general practitioners - to an increasing extent. It is necessary, therefore, not only to meet the requirements of the present situation but also to be prepared for likely future developments.

With so many disciplines concerned, the different specialists must clearly be able to work together as a team, a point already stressed in this report. The question might arise as to which of the specialists concerned should be regarded as the leader or "captain" of the team, but in practice this does not seem likely to present a serious problem since, after joint decisions about diagnosis and treatment have been reached, the specialist immediately responsible for management of the patient at a particular stage would naturally take control without any formal designation as leader of the team. The Group was informed that the principle of the multidisciplinary team was taken for granted in the eastern European countries and that this has given rise to no problems about clinical responsibility or leadership.

It was noted that there is potential scope for difficulty over the roles of cancer specialists and non-oncological specialists in the long-term management of patients. A specialist may often want to retain control of a patient to whose treatment he has made a major contribution, though it may be more appropriate that a surgeon should hand over control to a medical oncologist, for instance. Here again, there may be a need for training specialists in the art of teamwork and multidisciplinary cooperation.

The Group agreed that a non-oncological specialist need not be trained to perform all the most advanced techniques; for example, though a surgeon might be expected to deal with a relatively simple cancer condition, he need not necessarily be trained to deal with a pancreatic carcinoma or perform a liver resection. He should, however, be aware of the most advanced procedures and the facilities available for performing them and should also know what can be achieved in other disciplines; the surgeon, for example, should have an up-to-date acquaintance with modern techniques of radiotherapy and chemotherapy. In pathology and radiodiagnostics, too, there is a need for specialists with a higher level of training in matters relating to oncology.

The Group noted that many specialists are less well trained in the diagnosis than in the treatment of cancer. Since competence in diagnosis is particularly important for the non-oncological specialist, the Group agreed that further training of such specialists should keep them up-to-date with modern diagnostic methods.

The Group recommended:

(a) that formal specialist training of the non-oncological specialist should include epidemiology and biostatistics, prevention, biology and pathology related to cancer, diagnosis and treatment, follow-up and rehabilitation;

(b) that the importance of the multidisciplinary approach should be kept in mind throughout training;

(c) that training should be primarily practical and be supplemented by lectures and seminars; and

(d) that these recommendations should apply to continuing education as well as to initial specialist training.

4.3 The full clinical oncologist (oncological specialist)

The Group recognized that, in discussing the specialty of oncology, they were dealing with a number of different disciplines - in particular radiotherapy, internal medicine and surgery - which could not be mastered by any single individual. The oncologist is a physician trained for the management of cancer patients by radiotherapy, medicine or surgery, so the general term of "oncologist" or "clinical oncologist" should be defined by reference to the specific field of activity for which the individual is trained. There are thus radiotherapists, medical oncologists and surgical oncologists all practising within the general field of clinical oncology.

However, although the oncologist will have specialist training in one specific discipline (surgery, medicine, radiotherapy), he must be well informed about the possibilities of treatment through other disciplines, and since cancer treatment is often multidisciplinary, the oncologist must function as a member of a team and, being a member of a team, must be trained in cooperation and group decision making.

The Group agreed that it would be useful to distinguish two broad models of an oncological specialty, as follows:

Model 1

Full specialty in clinical oncology

Training in basic sciences related to oncology and all fields of clinical oncology and special training in oncological surgery, radiotherapy or chemotherapy, following training in the appropriate specialty, i.e. general surgery, internal medicine or radiotherapy.

Model 2

Training within other specialties

Training within the specialty (i.e. surgery, radiology, gynaecology, etc.) with additional training in a specialist department relating to the appropriate branch of oncology. The additional training in oncology should take not less than one year.

For the majority of the Group, model 1 was the preferred alternative, at any rate in countries where cancer control is based on large cancer centres. For the staffing of smaller centres, model 2 might be suitable. The view was expressed, however, that this might appear to provide patients treated at smaller centres with a lower standard of care; a preferable alternative would be to arrange for visits by a full clinical oncologist from a larger centre - an arrangement which is, of course, easier to achieve in a health service with some degree of regional or national organization. The assessment of the need for the different types of specialist would, thus, vary according to health service structure and policy in different countries.

The Group then considered the three main disciplines separately: radiotherapy, medical oncology and surgical oncology.

4.3.1 Radiotherapy

Noting that the pattern of training in radiotherapy is fairly well established, the Group did not find it necessary to consider it at any length.

The Group recognized that circumstances differ between, for example, a small hospital, a general hospital of some size (where it is preferable to have departments of clinical oncology, including radiotherapy and medical and surgical oncology) and large specialized institutions (which might have a separate radiotherapy department).

The Group recommended that, where a general hospital has a radiotherapy section, it should form part of a department of clinical oncology which also covers medical oncology and oncological surgery.

The Group noted that there is a practice in Norway of including chemotherapy and radiotherapy in one specialty. This is concentrated in one department headed by an oncologist originally trained in radiotherapy and medical oncology. It was observed that there is no reason to object to a tendency by radiotherapists to broaden their interests to include oncology in general - though they could not become all-round medical oncologists. The general view of the Group, however, was that medical oncology should be considered as a subspecialty of internal medicine, based on substantial training and experience as an internist and preferably experience in research or clinical investigation, and that the medical oncologist should be a fully trained internist. It

was recognized that Norway has a different conception whereby medical oncology can be part of radiotherapy training, although the period of such training is thus longer than in most other countries.

4.3.2 Medical oncology

Having agreed that the medical oncologist should be an internist, the Group went on to consider whether he should be a recognized specialist in oncology or a recognized internist who has worked as an oncologist.

The Group felt that the medical oncologist should be a full oncological specialist in the sense of being fully committed to that specialty. It might be difficult, however, to find a place for a full medical oncologist in smaller hospitals. One solution, discussed earlier in this report, is to have a visiting oncologist from a larger centre of the type now being developed.

The Group agreed that the first solution was preferable where the hospital situation allows it (i.e. that of a specialist totally committed to medical oncology). Where this is not possible, an alternative - though in the view of some members of the Group less desirable - pattern is to have an internist with some additional training (i.e. model 2).

The Group found it difficult, at the present stage of development, to determine a proper scale of provision for medical oncologists. After considering possible ratios of 1 per 100 000 population and of 1 for every 8 general physicians, it decided that it was not possible to say more than that, since in any cancer control service the number of medical oncologists required is likely to be at least equal to the number of radiotherapists and might be substantially more.

The Group then considered the content of the medical oncologist's training. The proposition was put before them that he should be a fully trained internist with additional training in basic oncology and chemotherapy. He should also have training in radiotherapy and some epidemiology. An alternative possibility, based on Norwegian experience, is that an integrated oncology department which includes drug therapy and hormone therapy in addition to radiotherapy would provide training in medical oncology. The majority of the Group found difficulty in accepting this concept as providing adequately for the specialty of medical oncology, since it would tend to isolate the oncological department from other disciplines in general medicine, though it was agreed that it might be described as clinical oncology.

The Group agreed that the medical oncologist working in a larger cancer centre (type (a)) should have adequate training in internal medicine plus a minimum of two years' extra training in oncology. (The use of the word "adequate" reflects the feeling of some members of the Group that, however desirable in itself, full training in internal medicine - which in some countries requires eight years of postgraduate experience plus two years in oncology - would take too long and would often be impracticable.)

The Group also agreed that the medical oncologist's training might be structured on the lines suggested by Professor H.J. Tagnon, in a recent article on training in medical oncology (5), as follows:

- Etiology: various causal factors, chemical and viral oncogenesis, environment, genetic predisposition.
- Tumour biology

  (a) Kinetics: growth characteristics of cells, cell cycle, cell division, stem cells, maturation, DNA repair mechanism, hormonal and physical agents, etc.

  (b) Cytogenetics: chromosomes, etc.

  (c) Biochemistry: molecular and cellular; metabolic pathways, markers.

  (d) Immunology: cellular and humoral factors; diagnosis and therapy.
- Natural history of cancer
- Epidemiology: including environmental factors and their control.
- Detection and diagnosis: including clinical, pathological, isotopic and other techniques.

- Patient management: principles of surgical care and radiotherapy; pharmacology and chemotherapy (this should be considered to cover the period from initial diagnosis throughout the clinical course).

- Rehabilitation and supportive care: host effects of cancer such as infections, anaemias and leucopenias, etc., and their treatment.

- Research: participation in investigative programmes.

The Group agreed that, during his additional training period of two years (minimum), the future medical oncologist (model 1) should hold an appointment as physician in the accredited training centre and that he should be given responsibility for the care of patients under supervision. He should also participate in all the educational activities of the training centre. At the end of the training period, his competence should be evaluated.

The Group also agreed that, in a second-level cancer centre (type (b)), a model 2 specialist would be appropriate with a minimum of one year's additional training in oncology included in his specialist training. A preferable alternative might be to arrange for visits by a model 1 medical oncologist from a larger centre. It did not make any recommendation about the type of oncologist required for an establishment providing a third-level cancer service (type (c)).

4.3.3 Surgical oncology

The Group agreed that a surgical oncologist in a major cancer centre (type (a)) should be a general surgeon who, after receiving additional training, is wholly committed to surgical oncology and that - as for medical oncology - the additional training should be a minimum of two years on top of an adequate practical training in general surgery. This would produce a model 1 specialist.

The Group also agreed that in a second-level centre (type (b)), a model 2 specialist would be appropriate with a minimum of one year's additional training in oncology included in his specialist training in surgery. A preferable alternative might be, as for medical oncology, to arrange for visits by a model 1 surgical oncologist from a larger centre.

5. Teaching and treatment

5.1 Relationship between treatment institutions and teaching institutions

Previous sections of this report contain comments on the suitability of particular training patterns to different structures for cancer control. It seems appropriate at this point to make some more general observations.

Relations between, on the one hand, cancer centres and other institutions providing cancer treatment and, on the other, university medical schools are not always as close and continuous as might be desirable. In some countries, all major cancer centres are within universities; in others, they are separate but associated with a university; in still others, there may be no connexion between the two. The reasons for a lack of connexion between treatment and teaching centres are often historical: it has perhaps been found difficult to link the specialized treatment institution with a university undergraduate teaching programme. The Group regarded it as essential to get away from this outdated separatism and establish the closest possible cooperation between the specialized cancer treatment centres and the universities responsible for teaching the subject. Some members felt that any future new cancer centres should, ideally, be located within a university, but at any rate it was agreed that such centres should either form part of a university or have a close connexion with it.

The function of the university can be seen as the provision of theoretical instruction, that of the cancer centre as the provision of practical training. This is, of course, too absolute a distinction. It is important that training in oncology should be practical, and this includes training in prevention as well as in diagnosis and treatment. It is no less important, however, that all cancer treatment centres, in which this practical training alone can be provided, should also be "teaching-oriented" and, of course, conversely that the teaching institution should give full weight to the need for practical training. Where these conditions are satisfied, the teaching and the practical training functions will be more effectively performed.

In this connexion, the Group noted that there is a need to increase the number of teaching posts in oncology in medical schools.

5.2 Continuing education

Reference has been made at various points in this report to the importance of continuing education (as distinct from immediate postgraduate specialist training) and the arrangements for providing it, which form an important element in the interaction of treatment and teaching. The varying patterns for the provision of continuing education in different countries are illustrated in Annex II. In some countries, such as Czechoslovakia, Hungary and the United Kingdom, continuing education is the specific responsibility of postgraduate medical schools, postgraduate centres or a national cancer institute; in the USSR, it is also carefully structured. In some countries, it remains relatively unstructured and variable in coverage.

Whatever the pattern in particular countries, however, the Group was convinced of the need to ensure that there are proper arrangements for continuing education in oncology for all physicians concerned in the diagnosis and treatment of cancer - the full clinical oncologist, the non-oncological specialist and the general physician.

6. International collaboration in oncological training

Cancer is a worldwide problem, and effective training in oncology must incorporate the results of the latest experience and research in many parts of the world.

An obvious contribution to the achievement of this goal is the wide dissemination of information on current research and treatment methods. The following are some of the international sources of information about particular fields.

References in the field of epidemiology include the IARC publication, Cancer incidence in five continents (6) and the Directory of ongoing research in cancer epidemiology (7) issued jointly by the IARC and the Cancer Research Centre, Heidelberg, Federal Republic of Germany. More specific information on current epidemiological research is supplied on request by the IARC clearing-house for ongoing research in cancer epidemiology. A number of national publications, e.g. in Finland (8), Norway (9) and Poland (10), also contain information on cancer epidemiology.

Among the sources of information on ongoing research and published results are the UICC international information office on controlled therapeutic trials in cancer (11); the Cancerline system, which forms part of the programme of the International Cancer Research Data Bank (ICRDB) run by the National Cancer Institute in the USA; and the SABIR system, run by the Institut Gustave-Roussy in France.

As regards the teaching of oncology, some information, although incomplete, is contained in the UICC International directory of specialized cancer research and treatment establishments (4).

With regard to the exchange of information on the technology and methods of ongoing research and the subjects of that research, there are two programmes administered by the UICC: i.e. for international cancer research technology transfer and for international cancer research workshops. Other sources of information are the publications containing radiotherapeutic data of the International Atomic Energy Agency (12) and the British Institute of Radiology (13).

There are no international sources of information on planned, continuing or completed European cancer control programmes and projects. Information on national cancer control programmes is, however, available, e.g. from the Warsaw Institute of Oncology in Poland and the National Cancer Institute in the USA (14).

Information on specialized oncological institutes dealing with research and treatment is contained in the UICC directory (4).

Two publications (15,16) describe in detail the training of staff for cancer registration programmes conducted at the University of California. There are various courses of training in medical information in European countries, oncology being included among other subjects (e.g. in the Federal Republic of Germany) or forming part of the postgraduate training of specialists in oncology (e.g. in Hungary). Information agencies dealing, for instance, with published and unpublished results of research and the cancer registries, also conduct inservice training.

Further information will be made available by the proposed WHO directory of cancer centres and schools teaching oncology, to which reference has already been made. The Group attached considerable importance to its earliest possible completion.

There are a variety of facilities under international arrangements for teaching in oncology. Examples are:

- The International Union Against Cancer (UICC): training courses, conferences, workshops, study groups, teaching projects; administration of fellowships and grants under the international cancer research technology transfer and international cancer research workshops projects and on behalf of the American Cancer Society (for one year's research abroad) and also the Yamagiwa-Yoshida memorial international cancer study grants (for periods of up to 90 days).

- The International Agency for Research on Cancer (IARC), Lyons: training courses.

- The European Organization for Research on Treatment of Cancer (EORTC), Brussels: symposia, one-day seminars for cooperative groups, clinical fellowships; "Semaine du cancer", organized in collaboration with the Centre national de la Recherche scientifique and the EORTC centre for clinical data evaluation.

Information about the availability of postgraduate training posts in cancer institutions all over the world is contained in the UICC directory (4).

The Group hoped that everything possible would be done to enable and encourage oncology teachers and oncologists in training to take part in these various activities, and to promote participation by countries and individuals in the various international organizations active in this field, particularly in those running multicentre clinical trials, which provide an excellent form of further training.

The Group also agreed that it would be to the advantage of undergraduate and postgraduate teaching in oncology if exchanges of professors, other teaching staff and postgraduate students between universities were to be facilitated and expanded.

7. Recommendations

(1) In view of the need to make information about the arrangements for postgraduate training in oncology in the European Region more widely available, every effort should be made to secure a fuller response to the WHO questionnaire seeking information about cancer centres and schools that teach oncology.

(2) There is a need to ensure that members of the nursing profession and other professions associated with medicine are properly trained for their part in the care of cancer patients.

(3) Postgraduate training in relevant aspects of oncology should ideally be provided to all medical specialists, and in any case to specialists in clinical medicine, radiology, laboratory medicine and related disciplines.

(4) The approach to cancer diagnosis and treatment must be multidisciplinary, and this requirement should be taken into account in postgraduate and continuing education.

(5) Postgraduate training in oncology for general physicians should cover primary prevention and education of the public, early diagnosis, modern treatment methods and availability of facilities, follow-up and rehabilitation.

(6) Postgraduate training for non-oncological specialists should ensure that they are kept up-to-date with modern diagnostic methods. It should cover epidemiology and biostatistics, prevention, biology and pathology related to cancer, diagnosis and treatment, follow-up and rehabilitation.

(7) For the full clinical oncologist (radiotherapist, medical oncologist or surgical oncologist), two possible models can be distinguished. The majority of the Group preferred the first model (full specialization in clinical oncology with training in basic and clinical oncology and special training in oncological surgery, radiotherapy or chemotherapy after the normal specialist training), at any rate for cancer control systems based on large cancer centres.

(8) Where a general hospital has a radiotherapy section, it should form part of a department of clinical oncology which also deals with medical oncology and oncological surgery.

(9) The general view of the Group was that medical oncology should be considered a subspecialty of internal medicine and that the medical oncologist should be a fully trained internist.

(10) A medical oncologist should be a full-time specialist in the sense of being fully committed to that specialty. He should have adequate training in general medicine plus a minimum of two years' extra training in oncology. During this period, he should hold an appointment as physician in the training centre with responsibility for the care of patients under supervision.

(11) A medical oncologist on the alternative model, with a minimum of one year's additional training in oncology within his specialist training in internal medicine, may be appropriately employed in smaller cancer centres. A desirable alternative and/or supplementary arrangement would be for a full-time medical oncologist from a large centre to pay regular visits to smaller centres.

(12) The Group called for its recommendations on the medical oncologist to apply, mutatis mutandis, to the surgical oncologist.

(13) Cancer treatment centres should either form part of a university or have a close connexion with one.

(14) Cancer treatment centres, which provide the essential practical training in oncology, should also be "teaching-oriented", and teaching institutions should give full weight to the need for practical training.

(15) There is a need to increase the number of teaching posts in oncology in medical schools.

(16) There should be proper arrangements for continuing education in oncology for all physicians concerned in the diagnosis and treatment of cancer - the full clinical oncologist, the non-oncological specialist and the general physician.

(17) Oncology teachers and oncologists in training should be enabled and encouraged to take part in the various international training activities.

(18) In the field of undergraduate and postgraduate teaching in oncology, exchanges of professors, other teaching staff and postgraduate students between universities should be promoted.

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Annex I

CANCER EDUCATION IN EUROPE

by
Professor S. Eckhardt
Director, National Cancer Institute, Budapest

Introduction

The following table, based on data from the International Union against Cancer's International directory of specialized cancer research and treatment establishments (2nd ed., Geneva, 1978), shows the number of European cancer establishments supplying data on cancer education.

Table 1. Number of cancer establishments supplying data, by country

Austria	6
Belgium	7
Bulgaria	2
Czechoslovakia	7
Denmark	7
Finland	10
France	28
German Democratic Republic	4
Germany, Federal Republic of	27
Greece	4
Hungary	3
Iceland	1
Italy	18
Malta	1
Netherlands	8
Norway	8
Poland	10
Portugal	3
Romania	4
Spain	16
Sweden	17
Switzerland	12
Turkey	6
USSR	20
United Kingdom	53
Yugoslavia	14
Total	296

Undergraduate education

In most of the countries, cancer surgery, radiotherapy and chemotherapy are taught within the framework of university curricula. In total, 103 universities and cancer establishments from 19 countries offer such courses. Table 2 shows the number and geographical distribution of training facilities.

Some of the universities employ "cancer coordinators" with responsibility for integrating the teaching of oncology in separate disciplines. The number of such persons, in contrast to the United States of America, is low.

Relatively few cancer establishments teach clinical oncology as a separate discipline. Clinical oncology may be optional or compulsory for medical students. Table 3 lists the countries with such education facilities.

Table 2. Number of cancer establishments with curricula in surgery, radiotherapy and chemotherapy for medical students, by country

Austria	4
Belgium	2
Czechoslovakia	1
Denmark	2
Finland	4
German Democratic Republic	1
Germany, Federal Republic of	12
Greece	2
Malta	1
Netherlands	4
Norway	3
Portugal	2
Romania	2
Spain	4
Sweden	8
Switzerland	5
Turkey	2
United Kingdom	34
Yugoslavia	10
Total	103

Table 3. Number of cancer establishments specialized in undergraduate teaching of oncology, by country

	Compulsory	Optional
Belgium	6	-
Czechoslovakia	1	-
Finland	2	-
France	20	-
Hungary	-	2
Italy	-	10
Norway	1	-
Poland	5	-
USSR	10	-
Turkey	2	-
Total	47	12

The wide variety of education systems existing in Europe for the time being makes it difficult to coordinate training efrorts and to concentrate on a multidisciplinary teaching approach.

Training of residents

Training in oncology for hospital residents is offered in most countries. The majority of training positions are held by nationals for language and financial reasons. Table 4 summarizes the situation of training facilities for residents.

It is obvious that Europe plays an important role in cancer education for residents from non-European countries as well. This is particularly the case in English- and French-speaking countries. When account is taken of the need for oncologists in the developing countries, it can be concluded that the existing training facilities in Europe are far below the actual demand.

Table 4. Number of training positions in oncology for residents, by country

	Total	National	Non-national
Austria	36	23	13
Belgium	37	23	14
Bulgaria	1	1	-
Cyprus	1	1	-
Czechoslovakia	48	46	2
Denmark	63	?	?
Finland	16	?	?
France	170	142	28
German Democratic Republic	6	?	?
Germany, Federal Republic of	105	?	?
Greece	209	?	?
Italy	288	260	28
Netherlands	134	21	113
Norway	52	50	2
Poland	6	6	-
Romania	82	72	10
Spain	97	90	7
Sweden	37	26	11
Switzerland	55	46	9
Turkey	45	41	4
USSR	373	362	11
United Kingdom	151	145	6
Yugoslavia	159	143	16
Total	2171	1772	274

Postgraduate training of physicians in oncology

Postgraduate training of physicians in oncology is carried out basically along two lines: (a) by organizing postgraduate training courses, and (b) by teaching oncology as a separate discipline.

Table 5 illustrates the number and distribution by country of cancer establishments which run courses in clinical oncology.

Postgraduate training courses in oncology for physicians are organized in 201 cancer treatment and research institutions in 23 countries. Most of these courses are run by university departments, but comprehensive cancer centres also carry out such activities as refresher courses for specialists.

Oncology as a separate discipline is taught mostly by comprehensive cancer centres, with a training period of 6-12 months. This is the policy in most of the eastern European countries, where specialists in oncology have to be trained in such institutions. Table 6 lists those countries and the number of those institutions.

Thus, oncology is considered a special field, and the training of physicians is concentrated in institutions where multidisciplinary patient care is the recognized therapeutic strategy.

Postgraduate training of radiation physicists is a special problem, since it needs interdisciplinary coordination of biological, medical and physical training. Accordingly, only few institutions carry out such programmes, as can be seen in Table 7.

Table 5. Number of cancer institutions running postgraduate training courses in oncology, by country

Austria	2
Belgium	7
Bulgaria	2
Cyprus	1
Czechoslovakia	4
Denmark	4
Finland	7
France	18
German Democratic Republic	4
Germany, Federal Republic of	17
Greece	2
Hungary	2
Italy	12
Netherlands	6
Norway	6
Poland	9
Romania	4
Spain	13
Sweden	8
Turkey	6
USSR	20
United Kingdom	34
Yugoslavia	13
Total	201

Table 6. Number of cancer institutions teaching oncology as a separate postgraduate discipline, by country

Bulgaria	1
Czechoslovakia	1
Hungary	1
Poland	1
Romania	1
USSR	20
Total	25

Table 7. Number of cancer institutions with training facilities for physicists (dosimetry), by country

Belgium	6
France	2
Hungary	1
Norway	1
Spain	1
United Kingdom	1
Total	12

Training of allied health professions

Training of nurses for cancer patient care is carried out in the following numbers of cancer institutions.

Table 8. Training of cancer nurses, by country

Austria	2
Belgium	1
Denmark	2
Finland	3
France	8
Germany, Federal Republic of	3
Italy	2
Norway	2
Netherlands	2
Poland	1
Portugal	2
Spain	2
Sweden	1
Switzerland	1
USSR	2
United Kingdom	5
Yugoslavia	3
Total	42

No doubt, the shortage of well-trained oncologists has been a powerful stimulus to institutions to carry out intensive training programmes for nurses in order to increase the effectiveness of the medical staff.

The training of radiotherapy technicians is concentrated mostly in radiotherapy departments. Such courses are run by 22 institutions. Computer specialists for biometrical research receive postgraduate training in only 2 institutions. Cytotechnicians are regularly trained in 4 cancer institutions.

Conclusions

Although these data are far from complete, they show current tendencies in cancer education in Europe. There is, however, an urgent need for a more detailed survey, which should show the numbers of qualified teaching personnel as well as the textbooks available. In addition, it would be necessary to draw guidelines for each individual country on its own cancer education programme. Recognizing the wide variety of needs and facilities even in Europe, it is essential to emphasize the necessity of gradual progress in this field. It is also important to establish close links between the European countries and exchange views on cancer education policies. This is a task which could be carried out by international organizations such as WHO and the International Union Against Cancer.

Annex II

FURTHER TRAINING IN ONCOLOGY - OVERALL SURVEY

Belgium

Postgraduate education in oncology is provided by the rotation of medical and surgical assistant residents in cancer centres for variable periods. In Brussels, every medical and surgical resident has to rotate one year in the cancer centre; in other cancer centres, rotation is less regularly planned and not compulsory. During their period of rotation, the residents have responsible assignments for patient care.

One of the most important aspects of postgraduate education in oncology is the participation of physicians in the cooperative clinical groups of the European Organization for Research on Treatment of Cancer, which bring together physicians, pharmacologists, statisticians and biologists to study specific problems of clinical treatment. Most physicians in the Brussels centre participate in such studies, in which more than 1200 physicians in western Europe take part; physicians from other Belgian centres, with a few exceptions, have not fully participated in this European programme.

Czechoslovakia

The planning of postgraduate medical education is the responsibility of the Institute of Postgraduate Education, which has a department of clinical oncology responsible for postgraduate education in that specialty. Teaching is organized in the form of cyclic courses in special fields of oncology for chief physicians, thematic short-term courses for specialists and training assignments in qualified institutions.

The thematic plan of the department of clinical oncology for 1978-79 includes a discussion meeting in clinical oncology for chief physicians of centres of clinical oncology, a thematic course on secondary prevention in clinical oncology, a thematic course on the multidisciplinary treatment of cancer and a training assignment in clinical oncology on a multidisciplinary basis.

Other departments of the Institute of Postgraduate Education also direct their activities towards oncological problems, in particular the departments of tuberculosis and respiratory disorders, paediatrics, surgery, urology, oto-rhino-laryngology, diagnostic radiology, radiotherapy and nuclear medicine. The most important thematic courses are on child cancer in paediatric surgery, the radiodiagnosis of cancer, radiotherapy and radio-immunological investigation in cancer.

Education at the regional level is organized by regional institutes of health under the supervision of the Institute of Postgraduate Education. This plan is mainly concerned with the further education of specialists in polyclinics and general practitioners.

France

In oncology, as in other specialties, there is no formal organization of further training. Programmes are offered independently by the various cancer centres and hospital-university centres and widely publicized in the medical press so that physicians can apply to participate. The content of the programme varies from region to region and from year to year.

In addition, there are further training arrangements of various kinds for physicians working in public hospitals, surgeons in private practice and radiotherapists not attached to hospitals. These take the form of lectures, seminars or small round-table meetings, and oncologists from the cancer centres take part in the teaching. Oncologists with special experience in particular fields also take part in postgraduate training at other cancer centres.

There are also round-table meetings on subjects within the field of clinical and therapeutic oncology during the "cancer day", which forms part of the Entretiens de Bichat, an annual clinical conference open to all French physicians.

Hungary

Postgraduate oncological training is organized by the National Cancer Institute in Budapest, which is not attached to any university but plays an active part in the training of medical students, and the Postgraduate Medical School in Budapest. It is provided at three of their institutes: the departments of oncopathology, clinical oncology and oncoradiology (an associate department of clinical oncology).

In Hungary, there is a statutory requirement that physicians must take postgraduate training every four to five years. It may take the form of either individual training or organized courses. Individual training is provided in a six-month period of practical training in various departments of the National Cancer Institute, which entitles a physician with other basic qualifications to become head of an oncological dispensary. Lectures in the postgraduate courses are given by experts from the National Cancer Institute, and participants receive a certificate testifying that they have attended the course.

The postgraduate courses cover the following fields:

- oncopathology: tumour pathology and histopathological tumour diagnostics; cytological diagnostics for tumours; histopathological diagnostics;

- clinical oncology: epidemiological, diagnostic and therapeutic questions relating to malignant tumours; early detection of gynaecological tumours; epidemiological and follow-up problems and sanitary measures in the medical care of tumour patients; chemotherapy of tumour diseases;

- oncoradiology: means, methods and results of practical radiation therapy; radiation biology, protection and hygiene; isotopic diagnostics and therapy; radiological diagnostics and therapy of breast tumours.

In addition, the Semmelweis University of Medicine and the Postgraduate Medical School include some lectures on oncology for further training of other specialists, e.g. on bone diseases and bone tumours for orthopaedists, on clinical haematology for internists, on malignant diseases in childhood for paediatricians, on the pathology of bone tumours for pathologists, and on clinical radiation physics and the planning of radiation therapy for physicists and radiologists.

Italy

Postgraduate education in oncology is given by university specialist schools under the Ministry of Education; they provide a three-year course with a final board examination.

These schools are directed by a professor of the medical faculty, usually a pathologist, who acts as a "cancer coordinator" according to a horizontal approach to cancer teaching.

The curriculum provides physicians with a complete programme of lectures, given not only by professors of the faculty but also by specialists or experts working in other institutions, such as cancer institutes and oncological divisions of general hospitals. All aspects of oncology are covered, so that basic and clinical oncology are well balanced in the programme.

The schools are well distributed over the country; at present, there are 12, of which two are in Rome and one each in Turin, Pavia, Genoa, Padua, Parma, Modena, Ferrara, Bologna, Pisa and Bari. However, the number of available places falls short of the needs.

In practice, young physicians have few opportunities for complete clinical training, since the so-called bedside teaching is possible only in specialized institutions such as cancer institutes, where the approach to cancer treatment is truly multidisciplinary.

Netherlands

Postgraduate training in oncology is carried out by the universities, the Netherlands Cancer Institute in Amsterdam, the Radiotherapeutic Institute in Rotterdam, the Netherlands Cancer Society and (to a lesser extent) the Netherlands Society for Oncology. The programmes vary from one institution to another; they include arrangements for training in oncology as part of courses in general surgery or medicine, special courses for both general physicians and specialists, trainee posts in surgical and medical oncology, one-day courses and seminars for both general physicians and specialists.

Norway

The responsibility for formal postgraduate training in medicine is in the hands of the Norwegian Medical Association. There are specialist committees for various specialties. As yet, there is no formal specialist examination in any of the specialties.

The universities offer physicians courses of a few days' duration in different aspects of medicine. The various specialty committees suggest courses within their own fields.

Postgraduate training for specialization in therapeutic oncology and radiotherapy is given at three hospitals, two in Oslo and one in Bergen. In these hospitals, there are about 20 training posts in oncology earmarked for physicians.

Physicians trained in radiotherapy or therapeutic radiology were considered until quite recently to belong to a subspecialty of radiology, but since 1975 a separate specialty of therapeutic oncology and radiotherapy has been recognized. Specialists in this discipline manage the diagnosis of cancer, radiotherapy, chemotherapy, hormone therapy and the clinical follow-up of cancer patients. Nuclear medicine, covering diagnosis and therapy through the use of radioisotopes, is usually a special discipline developed from laboratory medicine, but is sometimes practised by radiotherapists. There is not yet any specialty of gynaecological oncology or any oncological subspecialty in any other field of medicine.

The specialist training in therapeutic oncology and radiotherapy is divided into two parts: main training and supplementary training. The requirements for certification in this specialty are:

- main training: three years in a clinical cancer therapy department, giving a broad spectrum of radiation and drug therapy, and one year in a department of internal medicine, of which three months must be in a section or laboratory of haematology;

- supplementary training: six months in a department of radiodiagnostics and six months in a relevant clinical department, a medical institute or the Norwegian Cancer Registry.

By "relevant clinical department" is meant a department of gynaecology and obstetrics, general surgery, pathology, oto-rhino-laryngology or any other department providing cancer therapy.

In addition, participation in at least 100 hours of courses is compulsory. The courses must include 25 hours on the physics of radiation and radioactive isotopes, 10 hours on radiobiology and cell kinetics, 10 hours on tumour pathology, cytology or biology, and 25 hours on chemotherapy and hormone therapy.

Poland

The Postgraduate Medical School in Warsaw provides further training as follows:

- training of specialists, e.g. in medicine, surgery, radiology (includes surgical oncology, gynaecological oncology, histopathological oncology and radiotherapy);
- continuing education of all physicians, both specialists and general practitioners.

Postgraduate teaching is organized at two levels: central and regional. The objective of the central training is to provide continuing education for specialists, in the first place for those who act as departmental heads. This teaching is programmed by the school, in cooperation with the Medical Section of the Inter-University Educational Board, and is carried out by the school itself, by other medical schools, by medical research institutes and by regional centres of postgraduate medical education. Several provincial hospitals also participate in the teaching. The objective of the regional training is to provide continuing education for primary health care physicians. This teaching is programmed and carried out by regional centres of postgraduate medical education and is directed by regional directors of postgraduate teaching in accordance with the needs of individual regions. Medical schools, medical research institutes and selected hospitals and outpatient clinics participate in this teaching. There is a strong tendency to carry on this training as an inservice activity, with the teachers visiting regional and municipal hospitals throughout the country.

Continuing education in oncology is provided in three ways.

(a) The education of physicians engaged in primary health care is a regional responsibility and is supervised by the medical school in the particular region. The teaching is programmed and carried out jointly by the medical school, the regional oncological hospital and the regional centre of postgraduate medical education. The teaching is planned to meet the needs of the district health service and may vary according to those needs. It may be devoted entirely to particular oncological problems or consist mainly of detailed oncological teaching with or without practice included, as appropriate, in the broad training of physicians in system- or organ-oriented prophylaxis, diagnosis, treatment and rehabilitation.

(b) The training of specialists in cancer problems relevant to their particular specialty is, in effect, the continuing education of physicians who are departmental heads. It is programmed and carried out by the Institute of Oncology, which acts in this respect on behalf of the Postgraduate Medical School. Selected departments of medical schools may also participate in this teaching.

(c) The Institute of Oncology is responsible also for the continuing education of specialists in oncology, acting in this respect on behalf of the Postgraduate Medical School. The health authorities require specialists in oncology to attend refresher courses in oncology at least every second or third year.

Switzerland

There are seven clinical cancer centres in Switzerland located at various university, and some non-university, hospitals. They are combined with associated smaller hospitals in a national cooperative study group (SAKK - Schweizerische Arbeitsgemeinschaft für Klinische Krebsforschung), which is in the process of becoming an interdisciplinary organization including paediatricians, radiotherapists, surgeons, gynaecologists, pathologists and psychologists.

The activities and meetings of the SAKK constitute in themselves an excellent vehicle for further education in oncology. The SAKK not only has its own clinical studies but also participates in various international cooperative study groups, such as the Eastern Cooperative Oncology Group, the European Organization for Research on Treatment of Cancer, and the Ludwig Institute of Cancer Research. Participation in such therapeutic studies, directed towards practically all varieties of leukaemia, lymphoma and solid tumours, provides oncologists in different specialties with up-to-date knowledge of the state of the art, thus offering continuing practical training in modern oncology.

The various centres regularly organize courses in oncology for the medical community of their geographical area. In addition, the Swiss Society for Oncology, in collaboration with the Swiss Cancer League, holds yearly national meetings and also, on a smaller scale, workshops on selected topics. There are also Societies of Internal Medicine, Haematology, Paediatrics, etc., which devote national or regional meetings to oncological problems.

USSR

Postgraduate training of physicians for oncological institutions is designed not only to give them a knowledge of general oncology, but also to prepare them as experts in a particular specialty. The training is carried out mainly in oncological and radiological departments of advanced medical training institutes, where the trainee specialists take a five-month course of lectures for primary specialization. Some specialists in particular branches of oncology (e.g. neurosurgery, oto-rhino-laryngology, urology) receive their primary postgraduate specialization in departments of large oncological centres.

In future, all these specialists will be required to take advanced courses on the same or a similar pattern not less than once every three to five years.

The training of departmental heads and senior specialists takes place in a two- or three-year postgraduate course at a faculty of oncology or medical radiology or a large oncological centre.

For detailed study of particular subjects (in particular for familiarization with new methods of diagnosis and treatment), oncologists who have already had specialist training are attached for a period to departments of oncological centres.

Physicians providing oncological diagnosis, treatment and advice at oncological consultation centres and aid posts (established in rural areas and towns without an oncological hospital or dispensary) receive their primary specialization in oncology at special sessions in the oncological faculties of advanced medical training institutes or by practical training in regional oncological hospitals.

Physicians working in general hospitals receive postgraduate training at special sessions organized in the departments of oncology and medical radiology at advanced medical training institutes. General physicians and other physicians working in primary health care regularly attend seminars (including both lectures and practical studies) held in oncological dispensaries.

United Kingdom

For nonsurgical specialists, there are two routes for further training in oncology. One is through radiotherapy and oncology, the other through medical oncology.

Training for radiotherapy and oncology is organized by the Royal College of Radiologists. Entry to radiotherapy and oncology may be at senior house officer level (i.e. post-registration) but is mostly at registrar level. Training is carried out within approved departments of radiotherapy, and a multicentre training programme is organized by the London centres. The subjects covered in these courses include physics, statistics, radiobiology and pathology for

Part I of the Fellowship of the College of Radiologists examination; principles of medicine and surgery, clinical oncology and radiotherapeutics are covered in a Part II clinical and written examination. The examination provides the qualification required to practise radiation oncology (Fellowship of the Royal College of Radiotherapists and Radiologists). The mininum duration of training is three years, but one year may be spent in research.

Medical oncology is recognized by the Royal Colleges of Physicians as a subspecialty of general (internal) medicine, and training is supervised by a Joint Committee of Colleges and its subcommittees. Training posts are inspected and, if approved, are "recognized" for training purposes. Physicians wishing to train in medical oncology must first spend a minimum of three years in general (internal) medicine, take the examination for Membership of the Royal College of Physicians and then register for training and obtain a "recognized" post. The post must be held for at least four years, but this may be reduced by up to two years for appropriate research studies or training in allied subjects.

There are at present about ten times as many posts in radiotherapy and oncology as in medical oncology. Most of the medical oncology posts have been provided so far by the major cancer charities, the Cancer Research Campaign and the Imperial Cancer Research Fund.

Surgical oncology is not a recognized specialty, but the British Association of Surgical Oncology is well supported and active in encouraging interest among surgeons in the special problems of oncology.

The problems arising from the progressive extension of cancer chemotherapy into clinical practice have led the Royal Colleges of Physicians, Surgeons and Gynaecologists to establish a working party to enquire into training in oncology. This party was due to report in 1979.

Annex III

FURTHER TRAINING IN ONCOLOGY - PROGRAMMES FOR GENERAL PHYSICIANS

Belgium

The arrangements are centralized but not formalized. General physicians may attend lectures on oncology and gain credits for doing so, but not all do. General physicians whose patients are referred to a cancer centre for treatment are given the opportunity of participating in the treatment, but only about one third take advantage of this opportunity.

Czechoslovakia

General physicians regularly attend training programmes at regional oncology centres. The content of the programmes is decided by the centres.

France

No formalized arrangements exist, but universities and cancer centres have training programmes, widely publicized in the medical press, which are run in the evenings to suit the convenience of general physicians.

Hungary

The organization of further training courses for general physicians is decentralized. The National Cancer Institute in Budapest also offers lectures for general physicians, but these are only a minor part of its activities.

Italy

There is no formal teaching in oncology for general practitioners. Physicians may attend special courses and lectures on clinical oncology offered by regional colleges of physicians and surgeons, cancer institutes and general hospitals, but the attendance is usually very low. The only education that reaches the general practitioner consists of papers and reports from the medical press. Programmes of education for general physicians are under study in the framework of the recent health reform, and the regional authorities are responsible for the continuing education of physicians.

Netherlands

Courses and seminars for general physicians are organized by universities and cancer institutes, which determine the programmes. Some courses are organized by the general physicians themselves with Government assistance. Arrangements are decentralized, and training programmes are determined by the organizers.

Norway

Responsibility for further training of general physicians rests with the Norwegian Medical Association. There are no formal arrangements. The requirements for postgraduate courses for general physicians may or may not include training in oncology.

Poland

Hitherto centralized, the arrangements for postgraduate training of general physicians are now increasingly decentralized. Responsibility for programmes rests with regional medical schools. As far as possible, this training is provided on an inservice basis in hospitals.

Switzerland

Further training is organized by regional cancer centres, which hold day or half-day courses for general physicians at least once a year. More important than these courses is the contact between general physicians and specialists which always takes place when patients are referred to cancer centres.

USSR

Short-term seminars (lectures and practical work) are held periodically for general physicians. Organization is decentralized, but the programmes are structured to meet the needs of practising general physicians.

United Kingdom

There is an organized system of regional teaching centres, which determine their own programmes. Information about programmes is made available to general physicians, who are not required to attend the courses but have a financial inducement to do so.

Annex IV

LIST OF PARTICIPANTS

TEMPORARY ADVISERS

Professor N.N. Alexandrov
Director, Institute for Scientific Research in Oncology and Medical Radiology, Minsk, Byelorussian SSR

Professor K. Bagshawe
Department of Medical Oncology, Charing Cross Hospital, London, United Kingdom

Professor F.J. Cleton
Ant. van Leeuwenhoek Hospital, Amsterdam, Netherlands (Chairman)

Professor A. Demaille
Director, Oscar Lambret Centre, Lille, France

Dr G. Gyenes
National Institute of Oncology, Budapest, Hungary

Dr S. Harvei
Assistant Director, Cancer Registry of Norway, Institute for Epidemiological Research, Norwegian Radium Hospital, Oslo, Norway (Vice-Chairman)

Dr W. Hijmans[a]
Institute of Experimental Gerontology, Organization for Health Research, Reijswijk, Netherlands

Mr J. Hogarth
104 Shanklin Drive, Leicester, United Kingdom (Rapporteur)

Dr O. Hrodek
Second Department of Paediatrics, Charles University, Prague, Czechoslovakia

Professor W.K. Jasinski
Department of Nuclear Medicine, Postgraduate Medical School, Warsaw, Poland

Professor G. Martz
Oncology Section, Department of Internal Medicine, University of Zurich, Switzerland

Dr T. Mork[b]
Director-General of Health Services, Oslo, Norway

Dr J.J.L. Pieters[a]
Inspector of Noncommunicable Diseases, Ministry of Public Health and Environmental Protection, Leidschendam, Netherlands

Professor B. Salvadori
Director, Division of Clinical Oncology, National Cancer Institute, Milan, Italy

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[a] Participation expenses not paid by WHO or organizers

[b] Unable to attend

Professor H. Tagnon
Tumour Centre, Jules Bordet Institute, Brussels, Belgium

Professor A. Zwaveling
Department of Surgery, University Hospital, Leiden, Netherlands

WHO REGIONAL OFFICE FOR EUROPE

Dr I.J. Møller
Regional Officer for Oral Health (Secretary)